AMENDMENTS TO THE CLAIMS

1. (currently amended) A network comprising:

a hub device configured to generate a token and broadcast the token on the network, wherein the token includes a stream identifier that identifies one of a plurality of logical unidirectional communication streams; and

at least one peripheral device configured to:

receive the token broadcast by the hub device,

determine whether the token identifies the peripheral device,

analyze the token to determine a size and direction of a ~~current~~ data transfer when the token identifies the peripheral device, and

transfer data to or receive data from the hub device over the identified communication stream according to the determined size and direction of the ~~current~~ data transfer.

2. (currently amended) The network of claim 1, further comprising:

a single wireless communication channel having [[a]] the plurality of logical unidirectional communication streams~~, the data transfer occurring over one of the communication streams~~.

3. (currently amended) The network of claim [[2]] 1, wherein the token includes:

an address of one of the hub device and the peripheral device~~, and a stream number that identifies one of the communication streams~~.

4. (currently amended) The network of claim [[2]] 1, wherein each of the communication streams has a predetermined size and direction of a data transfer.

5. (original) The network of claim 1, wherein the network operates according to a communications protocol shared by the hub device and the peripheral device to synchronize timing of communications.

6. (original) The network of claim 5, wherein the communications protocol includes a plurality of frames, each of the frames including:

a signal that marks a start of the frame,

at least one token transmission that identifies the peripheral device, and

at least one data transfer opportunity that permits the hub device to communicate a data block with the peripheral device.

7. (currently amended) The network of claim 1, wherein the hub device includes:

a plurality of data blocks, each of the data blocks containing an address of ~~one of the hub device and~~ a peripheral device and having a block size, ~~a the stream number that specifies a size and direction of transfer, and a data buffer,~~ the hub device cycling through the data blocks to generate ~~the tokens~~ a token for each data block, wherein the size of data transfer included in the token for each data block corresponds to the block size of the data block.

8. (original) The network of claim 1, wherein the peripheral device is further configured to respond to at least two addresses.

9. (original) The network of claim 8, wherein the peripheral device is further configured to associate at least one active communication stream with each of the at least two addresses.

10. (original) The network of claim 1, wherein the peripheral device is further configured to respond to at least three addresses, one of the three addresses being an address of the hub device.

11. (original) The network of claim 1, wherein the peripheral device includes a plurality of virtual peripheral devices.

12. (original) The network of claim 1, wherein the hub device includes a memory including:

a link layer control structure that performs network bandwidth control and token planning,

a network interface structure that determines whether and when to schedule a data transfer, and

a link layer transport structure that provides a reliable data transfer for the network interface.

13. (original) The network of claim 1, wherein the peripheral device includes a memory including:

a link layer control structure that performs token planning,

a network interface structure that determines whether and when to schedule a data transfer, and

a link layer transport structure that provides a reliable data transfer for the network interface.

14. (currently amended) The network of claim 1, wherein at least one of the hub device and the peripheral device is further configured to transfer the same data in multiple forms and the stream on which the data is communicated indicates the form of transfer.

15. (currently amended) The network of claim 14, wherein the multiple forms include ~~at least one of the hub device and the peripheral device is further configured to transmit the data in~~ an original form and at least one of a complemented form and a reverse order form.

16. (cancelled).

17. (currently amended) The network of claim 14, wherein at least one of the hub device and the peripheral device is further configured to combine the multiple forms of the same data to reconstruct the data.

18. (original) The network of claim 1, wherein the hub device is further configured to schedule transmission of a status block from the peripheral device.

19. (original) The network of claim 18, wherein the hub device is further configured to schedule transmission of data from the peripheral device when the status block from the peripheral device indicates that the peripheral device has data ready for transmission to the hub device.

20. (currently amended) A network comprising:

hub means for generating a token and for broadcasting the token on the network, wherein the token includes an identifier that identifies one of a plurality of logical unidirectional communication means; and

peripheral means connected to the hub means, the peripheral means including:

means for receiving the token broadcast by the hub means,

means for determining whether the token identifies the peripheral means,

means for analyzing the token to determine a size and direction of a ~~current~~ data transfer when the token identifies the peripheral means, and

means for transferring data to or receiving data from the hub means over the identified communication means according to the determined size and direction of the ~~current~~ data transfer.

21. (currently amended) A method for transmitting data in a network having a hub device connected to at least one peripheral device, comprising:

generating a token, wherein the token includes a stream identifier that identifies one of a plurality of logical unidirectional communication streams;

broadcasting, by the hub device, the token on the network;

receiving the broadcast token at the peripheral device;

determining, at the peripheral device, [[that]] whether the token identifies the peripheral device;

analyzing the token to determine a size and direction of a ~~current~~ data transfer when the token identifies the peripheral device; and

transferring data between the peripheral device and the hub device over the identified communication stream according to the determined size and direction of the ~~current~~ data transfer.

22. (cancelled)

23. (currently amended) The method of claim 21, wherein the generating a token includes:

accessing a data block in the hub device to identify an address and [[a]] the communication stream for the ~~current~~ data transfer, and

generating the token based on the identified address and communication stream.

24. (original) The method of claim 23, wherein the determining includes:
decoding the token to identify the address and the communication stream, and analyzing the identified address to determine whether the identified address matches an address of the peripheral device.

25. (original) The method of claim 24, wherein the analyzing the identified address includes: determining whether the identified communication stream is active for the identified address.

26. (currently amended) The method of claim 21, wherein the transferring includes:
transmitting the same data in multiple forms and identifying the form of transfer by the stream on which the transfer occurs.

27. (currently amended) The method of claim 26, wherein the transmitting includes:
sending the same data in an original form and at least one of a complemented form and a reverse order form.

28. (cancelled)

29. (currently amended) The method of claim 26, further comprising: combining the multiple forms of the same data to reconstruct the data.

30. (original) The method of claim 21, wherein the transferring includes: scheduling, by the hub device, transmission of a status block from the peripheral device.

31. (original) The method of claim 30, wherein the transferring further includes: scheduling, by the hub device, transmission of data from the peripheral device when the status block from the peripheral device indicates that the peripheral device has data ready for transmission to the hub device.

32 – 35 (canceled)

36. (original) A method for transferring data in a network connecting a hub device to a set of peripheral devices, the network operating according to a communications protocol having a plurality of alternating token slots and data transfer slots, the method, performed by the hub device, comprising:

identifying an address and a communication stream for a ~~current~~ data transfer, the address identifying one of the peripheral devices;

generating a token based on the identified address and communication stream;

broadcasting the token on the network during one of the token slots; and

communicating the data between the identified peripheral device and the hub device on the identified communication stream during one of the data transfer slots.

37. (original) A hub device that communicates data in a network connecting the hub device to a plurality of peripheral devices, the network operating according to a communications protocol having a plurality of alternating token slots and data transfer slots, the hub device comprising:

a memory having instructions for:

identifying an address and a communication stream for a current data transfer, the address identifying one of the peripheral devices,

generating a token based on the identified address and communication stream, broadcasting the token on the network during one of the token slots, and

communicating the data between the identified peripheral device and the hub device on the identified communication stream during one of the data transfer slots; and a processor that executes the instructions in the memory.

38. (currently amended) A method for transferring data in a network connecting at least one peripheral device to a hub device, the method, performed by one of the peripheral devices, comprising:

receiving a token from the hub device that identifies the peripheral device and one of a plurality of logical unidirectional communication streams;

analyzing the token to determine a size and direction of a ~~current~~ data transfer; and

transferring data to or receiving data from the hub device over the identified communication stream according to the determined size and direction of the ~~current~~ data transfer.

39. (currently amended) The method of claim 38, wherein the token includes an address and a communication stream identifier; and wherein [[the]] analyzing the token includes:

decoding the token to identify the address and the communication stream identifier,

determining whether the address identifies the peripheral device, and

determining the size and direction of the ~~current~~ data transfer from the communication stream identifier.

40. (currently amended) A peripheral device that communicates data in a network connecting at least one peripheral device to a hub device, the peripheral device comprising:

a memory that stores instructions; and

a processor that executes the instructions in the memory to:

receive a token from the hub device, [[that]] wherein the token identifies the peripheral device and one of a plurality of logical unidirectional communication streams,

analyze the token to determine a size and direction of a ~~current~~ data transfer, and

transfer data to or receive data from the hub device over the identified communication stream according to the determined size and direction of the ~~current~~ data transfer.

41-43. (canceled)

44. (new) The peripheral device of claim 40, wherein the processor is further configured to receive at least one data transfer opportunity that permits the peripheral device to communicate a data block with the hub device.

45. (new) The peripheral device of claim 40, wherein the processor is further configured to receive a beacon that marks a start of one of a plurality of frames in a communications protocol used by the network.

46. (new) The peripheral device of claim 40, wherein the network operates according to a communications protocol having a plurality of alternating token transfer slots and data transfer slots, and wherein the processor is further configured to receive the token during a token transfer slot and to transfer the data during a data transfer slot immediately following the token transfer slot.